ABSTRACT

The present invention provides a dual coaxial data and DC power transmission system that exceeds transmission distances possible using conventional Cat-5 cable. The coaxial cable couples to a converter to convert the coaxial data to differential data. The differential data is then transmitted to a Cat-5 cable, which is in communication with a local destination. The converter further receives differential data from the Cat-5 cable, converts it to coaxial data, and transmits the coaxial data to the coaxial cable. In one embodiment, the converter may further include an amplifier to boost the coaxial data into the coaxial cable.

The present invention integrates power distribution throughout the coaxial cables to remote sites. The shield of one coaxial cable may be the positive polarity and the shield of a second coaxial cable may be the negative polarity of the system power. The converter further receives and transmits system power between the coaxial cable and the Cat-5 cable. System power may be directed across the Cat-5 cable to power local devices at a destination in the network. System power may also be directed from the converter to power other network devices in communication with the converter, such as a switch. The NAN system may employ a switch in communication with the converter to route data and system power to one of a plurality of Cat-5 cables to arrive at a specific destination.